

2.2-2.3 Principles and Measurement of HPM

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- ## Learning objectives
1. Be able to articulate representative metrics used for quantifying health and productivity costs.
 2. Identify potential data sources for quantifying health and productivity costs.
 3. Characterize the features of available health and productivity measurement tools.
 4. Understand the links between personal health and workplace productivity.
 5. Describe several of the challenges associated with measurement and quantification of health and productivity.
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Bernardo Ramazzini

"The maladies that afflict the clerks afore said arise from three causes: First, constant sitting, secondly the incessant movement of the hand and always in the same direction, thirdly the strain on the mind from the effort not to disfigure the books by errors or cause loss to their employers when they add, subtract or do other sums of arithmetic..... In a word, they lack the benefits of moderate exercise....."

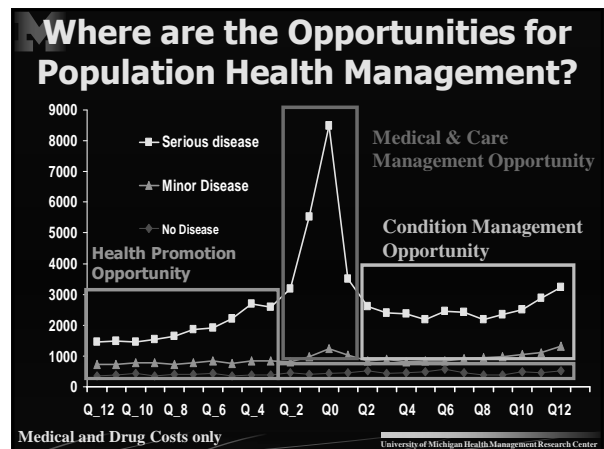
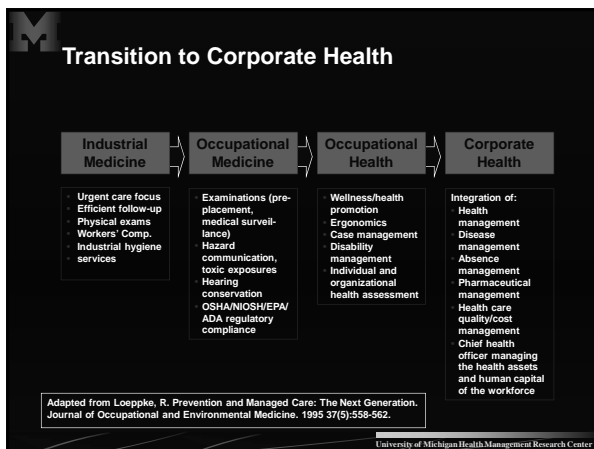
Diseases of Scribes and Notaries, 1700

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Business men are learning that well-fed, well-clothed, contented men and women working in well-lighted, well-ventilated quarters and on schedules arranged in accordance with our modern knowledge of psychology and physiology, actually turned out more work and better work than underpaid, discontented help, working under uncomfortable and unsanitary conditions. Therefore large corporations are spending money liberally on playgrounds, restrooms, libraries, gymnasiums, sanitary lunch rooms, moving-picture shows, safety devices, ventilating systems and similar devices for the well-being and enjoyment of their employees.

Human Happiness A Business Asset
JAMA
October 12, 1912

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Overview

- Identification of cost drivers
- Integrated healthcare data (“data warehouse”)
- Information vs data
- Direct vs indirect costs
- Disease and worker productivity

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Assumptions

- Costs Can Be Managed
- You Can't Manage Costs you Can't Track
- Costs are Inter-related
- Track as many costs as possible

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Solutions

- Partnerships
- Scrambled IDs
- Creative Workarounds
- Standards

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In The Past . . .

Fragmented Databases

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Now

Integrated Relational Database

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Productivity

Medical Costs

Wellness

Administration

Disability

Biometrics

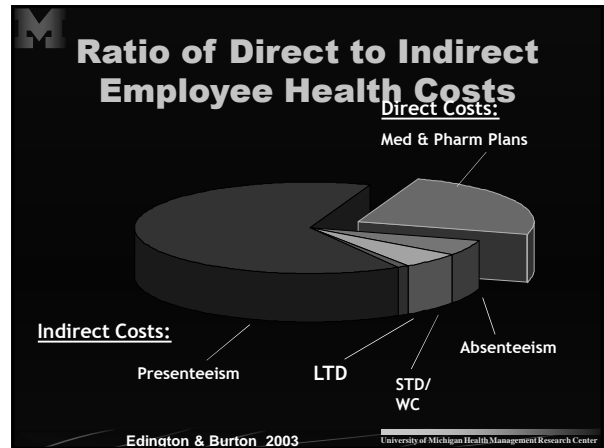
Personnel

Medical Records

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**Eliminate "Silo" Thinking
Consider the
Total Value of Health**

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Factors affecting health and productivity

Health-related factors	Productivity-related factors
Physical health	Absenteeism
Chronic disease	STD & LTD
Acute illness	FMLA
Lifestyle	WC
Health risks	Incidental Absence
Preventive care	Presenteeism
Other factors	Work Issues
Demographics	Ergonomics
Caregiving	Occupational exposures
Work/life imbalance	

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- Direct Health Costs**
- Connected with the diagnosis & treatment of an illness
 - Usually represented by medical and pharmacy plan claims
 - Affected by:
 - Health of plan members
 - Benefit plan modifications
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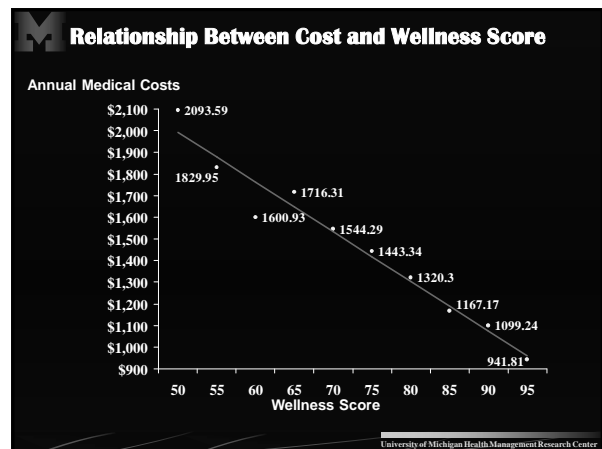
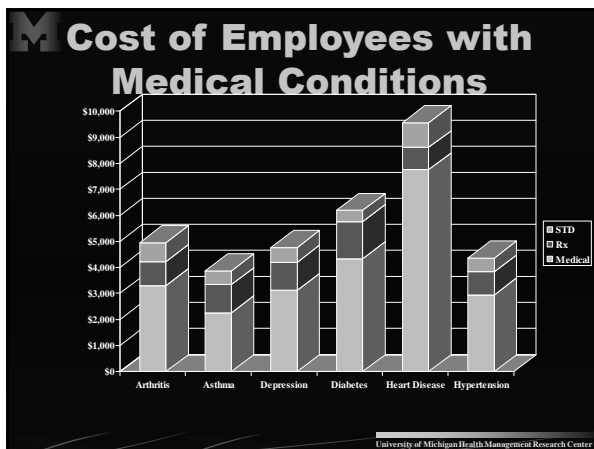
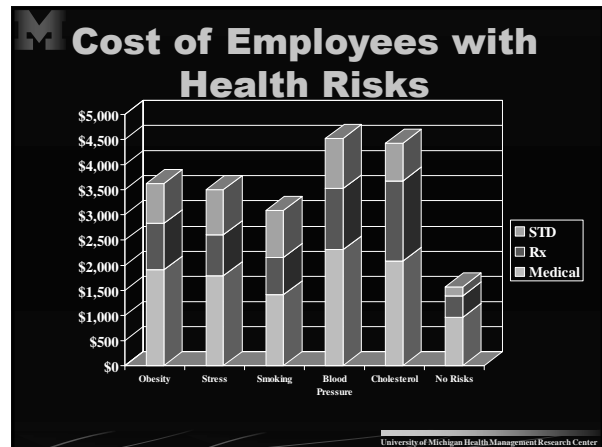
- HRA: Selected Health Risks**
- Lifestyle
 - Smoking
 - Exercise
 - Seatbelt Usage
 - Alcohol
 - Perception
 - Life satisfaction
 - Personal Loss
 - Perception of Health
 - Biological
 - Diabetes
 - Blood Pressure
 - Cholesterol
 - Body Weight (BMI)
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Health Risks and Behaviors

Health Risk Measure	High Risk Criteria
Alcohol	More than 14 drinks/week
Blood Pressure	Systolic >139 or Diastolic >89 mmHg
Body Weight	BMI ≥ 27.5
Cholesterol	Greater than 239 mg/dl
Existing Medical Problem	Heart, Cancer, Diabetes, Stroke
HDL	Less than 35 mg/dl
Illness Days	>5 days last year
Life Satisfaction	Partly or not satisfied
Perception of Health	Fair or poor
Physical Activity	Less than one time/week
Safety Belt Usage	Using safety belt less than 100% of time
Smoking	Current smoker
Stress	High

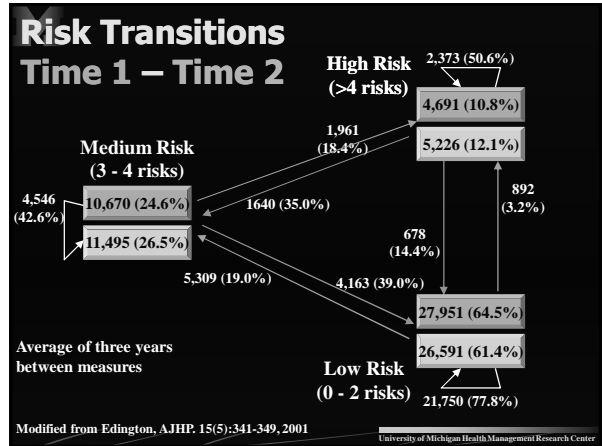
OVERALL RISK LEVELS	
Low Risk	0 to 2 high risks
Medium Risk	3 to 4 high risks
High Risk	5 or more high risks

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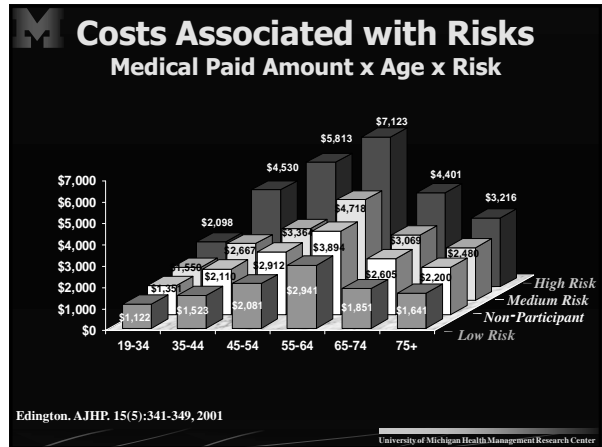
The Natural Flow of Health Risks and Behaviors

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The Natural Flow of Risks and Costs

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The flow of Risks is to High-Risk

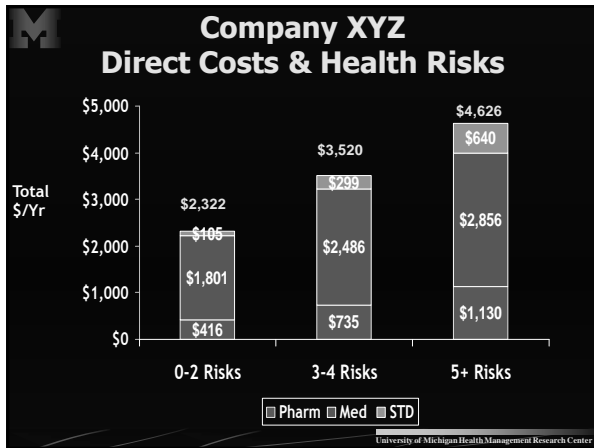
The flow of Costs is to High-Cost

Costs follow Risks and Age

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Excess Costs follow Excess Risks

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Risks Travel in Clusters

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Biometric Cluster (Metabolic Syndrome)

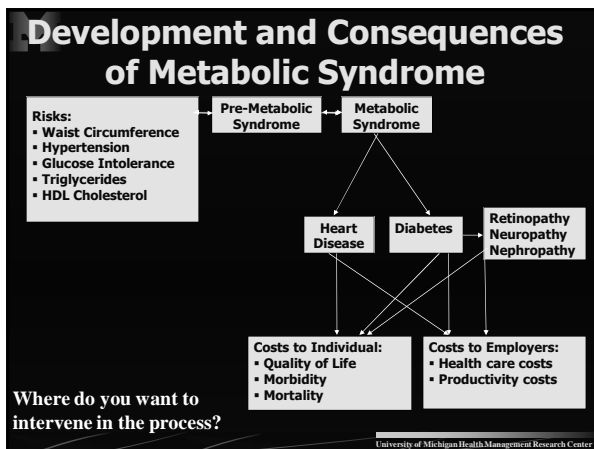
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Clinical Identification of Metabolic Syndrome

Any three of the following:

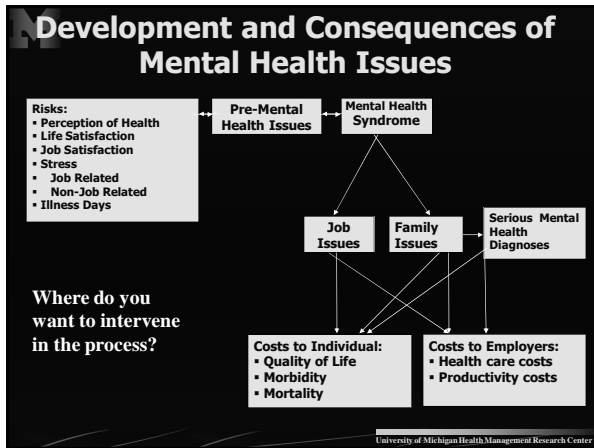
Risk Factor	Defining Level
1. Waist Size	
Men	>40 in (>102 cm)
Women	>35 in (>88 cm)
2. Triglycerides	≥150 mg/dL
3. HDL-C	
Men	<40 mg/dL
Women	<50 mg/dL
4. Blood pressure	≥130/85 mmHg
5. Fasting glucose	≥110 mg/dL

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Intervention for Psychological Cluster

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Change in Costs follow "Don't Get Worse"

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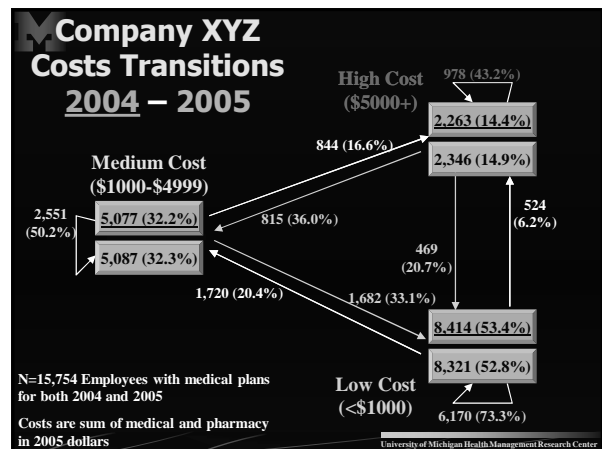
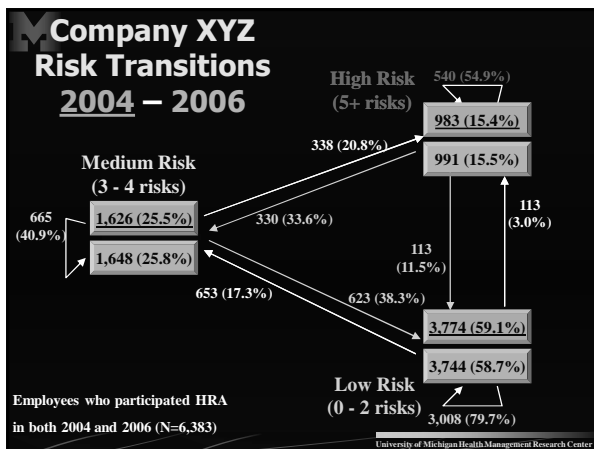
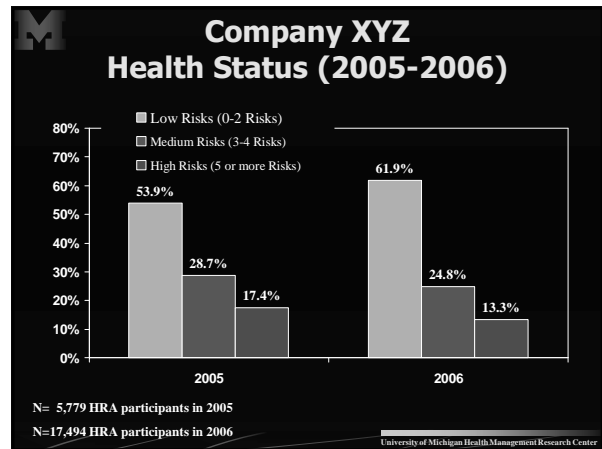
Summary

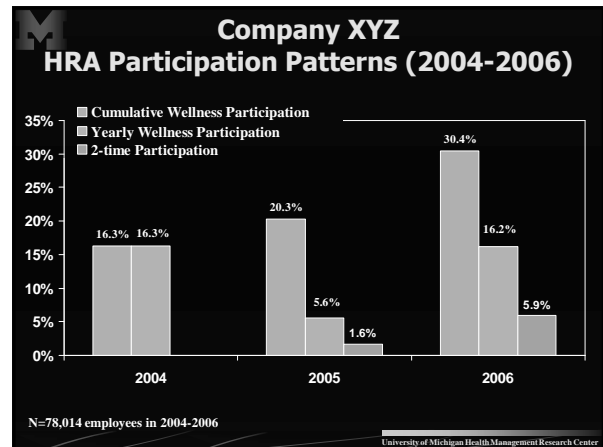
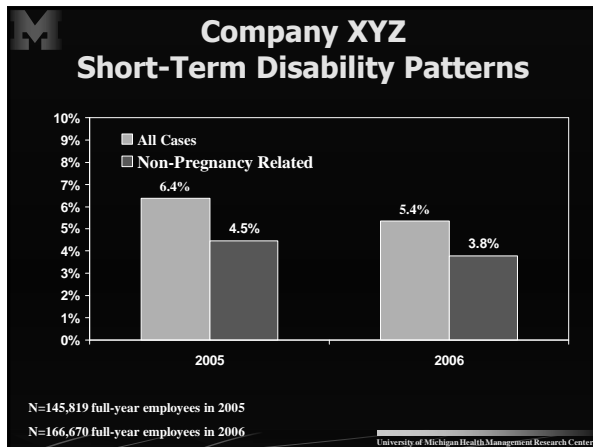
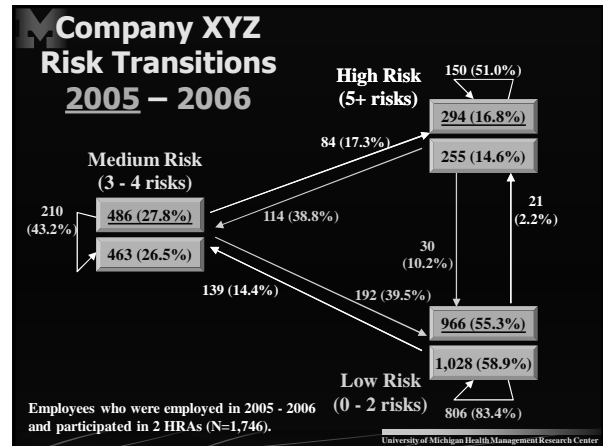
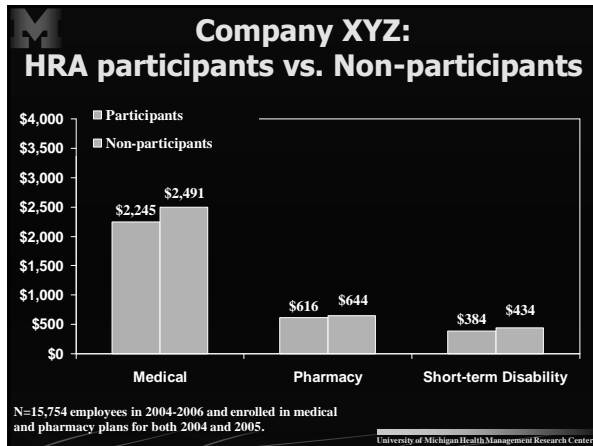
Business Case for Health Management

Excess Costs are Related to Excess Risks

Risks Travel in Clusters

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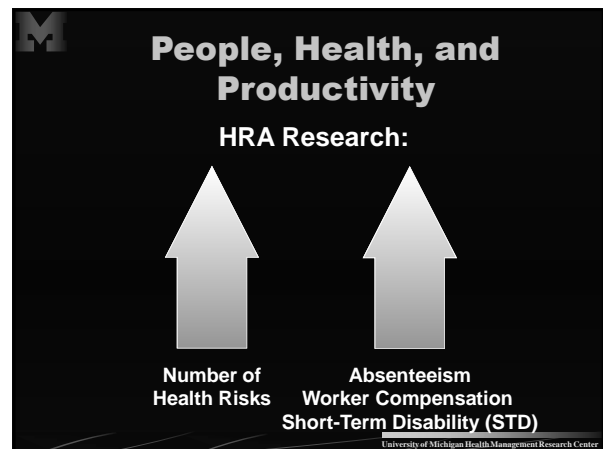


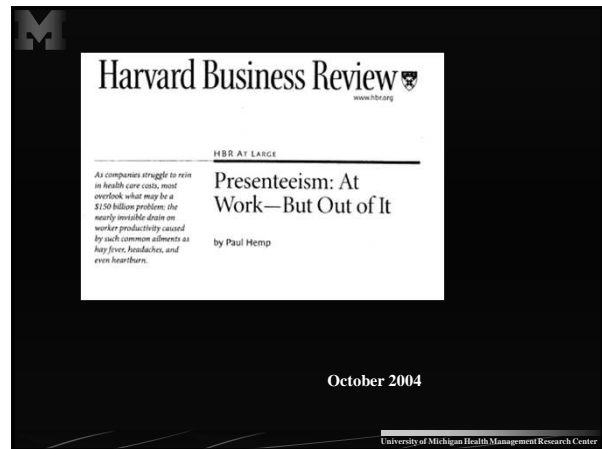
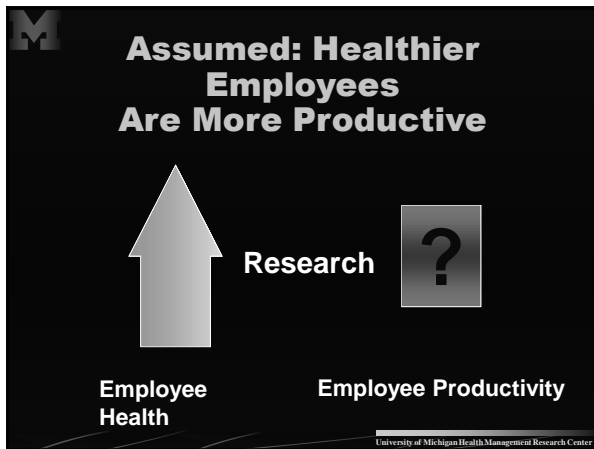
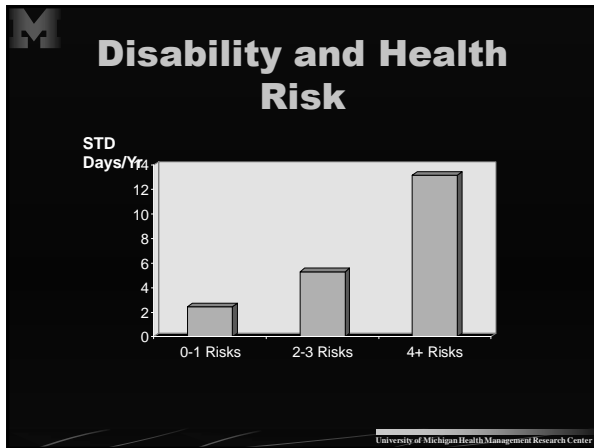


Measures of Productivity

- Absenteeism
- Disability
- Worker Compensation
- Presenteeism

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- ## The Underlying Assumption Leads to...
- How much less productive are sick employees than well ones?
 - What sorts of health problems produce the greatest impact on productivity?
 - Is mental health as important as physical health?
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- ## Measuring Worker Productivity
- Two different research strategies have been used:
- *Objective employee job performance
 - *Self-report instruments (i.e. subjective)
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What's needed to measure presenteeism...

- A measure of the health of the workforce : HRA
- A measure of productivity

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Measuring the Link Between a Common Health Problem -- Allergies, and Presenteeism

Burton et al. JOEM. 2001; 43: 64-71.

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Measuring "Presenteeism"

- The Job
 - Telephone customer service reps
- The Productivity Measurement System
 - An automated telephone call timing system
 - Variables chosen
 - Handle time (length of call)
 - Aux time (time between calls)

Burton et al. JOEM. 2001; 43: 64-71.

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Why Allergies?...

Previous HRA Research

Health Condition	Percentage
Allergies	~45%
Back Pain	~35%
Obesity	~20%
Migraine	~20%
Hypertension	~10%
Asthma	~8%
Diabetes	~5%

N = 19,853

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Average Weekly Pollen Counts

Grains/cubic m/day

Weeks (Late Summer, 1999)

Burton et al. JOEM. 2001; 43: 64-71

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Ragweed Pollen Levels & Workers with Allergies

% Decrease in Productivity Compared to Workers Without Allergies

Pollen Level	% Decrease in Productivity
Absent (0)*	~0%
Low (0-10)	~-1.5%
(>10-50)	~-3.5%
High (>50)	~-7.5%

*Ragweed Pollen Levels

Burton et al. JOEM. 2001; 43:64-71

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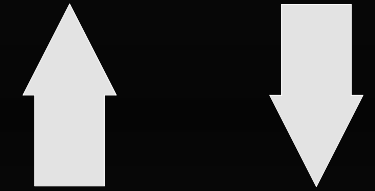
Demonstrating the Link Between Workers' Productivity & Health Risks and Diseases

Burton et al. JOEM. 1999; 41: 863-877

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Productivity & Health Risks

Health Risk Assessment (HRA) Research:

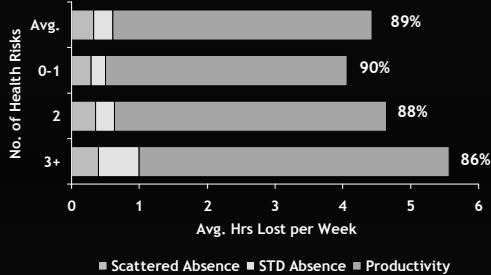


Number of Health Risks

Productivity

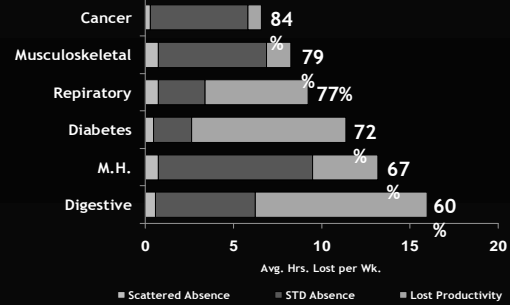
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Productivity Loss and Health Risks



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Productivity Loss and Disease States



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Requirements of a workplace productivity measurement tool:

- Should have supporting scientific evidence
- Should be applicable across work settings and occupations
- Should support effective business decision making
- Should be practical in its ease and cost of administration

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Estimating the Productivity Loss of the Workforce

- Health Risk Appraisal
- Productivity Questionnaire

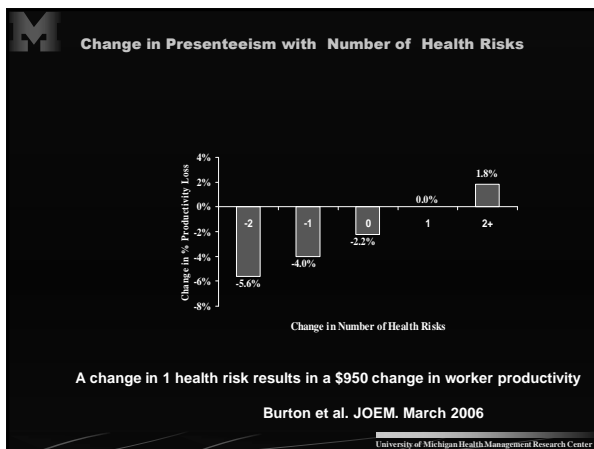
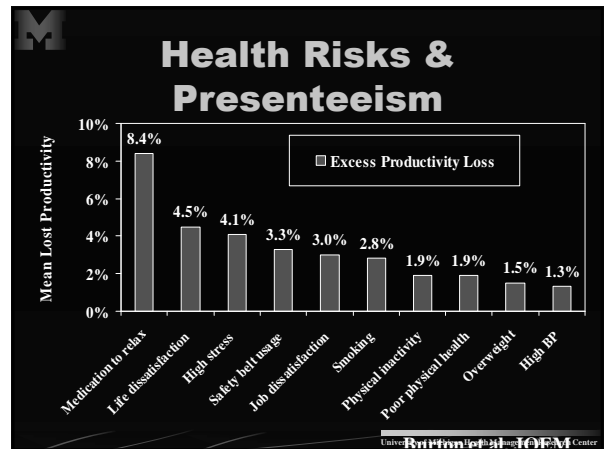
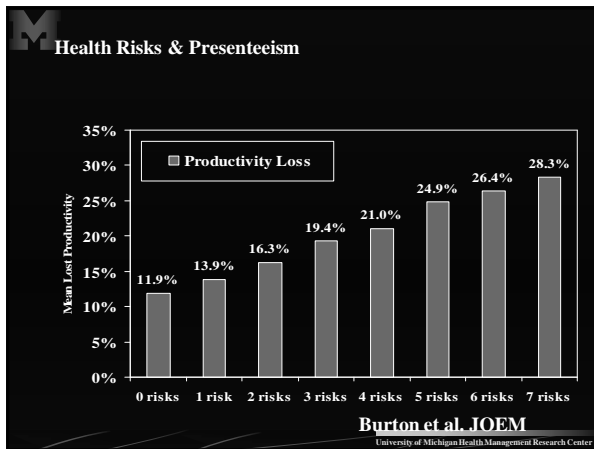
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Presenteeism Survey Based Tools

Tool	Full Name	Comment
HLQ	Employer Health Coalition	
WLQ	Work Limitations Questionnaire	8 & 24 Question versions
HPQ	Health and Performance Questionnaire (WHO)	Previously known as the MacArthur Health and Performance Questionnaire (MHPQ)
SPS	Stanford Presenteeism Scale	Previously known as the Stanford/ American Health Association Presenteeism Scale, (SAHAPS)
WPAI	Work Productivity and Activity Impairment Questionnaire	
EWPS	Endicott Work Productivity Scale	
HLQ	Health and Labor Questionnaire	
SF-36	Short Form - 36	Also has forms SF-12

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- ### Challenges in measuring health & productivity
- Self-report versus objective measures
 - Validity of questions
 - Data access and collection
 - Confidentiality
 - Natural history – regression to the mean
 - Appropriate linking of health and productivity – causation or just association?
 - Trending and workforce changes
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The theory.....

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Dictionary of Occupational Titles

-- U.S. Department of Labor

Data People Things

Job

--	--	--

b

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Diseases + Skill Functions

Data People Things

Back Pain	+	+	++++
Hypertension	+	+	++
Depression	+++	++++	+

From: Finkelstein, Greenberg, et. al, 1996.

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Jobs + Skill Functions

Data People Things

Coil Winder	+	+	++++
Programmer	++++	+	++
Tel. Cust. Service	+++	++++	+

From: Finkelstein, Greenberg, et. al, 1996.

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Jobs + Diseases + Skill Functions

Data People Things

Coil Winder			Back Pain
Programmer	Deprssn		
Tel. Cust. Service	Deprssn	Deprssn	

From: Finkelstein, Greenberg, et. al, 1996.

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Comparison of Presenteeism Questionnaires

Instrument	Hrs lost past 2 wks	Cost/ 2 wks
HLQ	1.6 (3.9)	\$30
WLQ	4.0 (3.9)	\$83
HPQ	13.5(17.5)	\$284
WPAI	14.2(16.7)	\$285

Zhang et al. J Rheumatology. Sept 2010

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Measurement Issues

- "Best" measurement of presenteeism
- Do all instruments measure same quality?
- Do the majority of employees experience presenteeism or a minority?
- Can more instruments be validated against an objective standard?
- More head to head comparisons.
- Accommodating various job types
- Extrapolation of short recall period

Brooks et al. JOEM, November 2010

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Health Management as a Serious Health and Productivity Strategy

1. **Improve Health Status** (beat the Natural Flow)
2. **Reduce Healthcare Cost** (beat the Natural Flow)
3. **Reduce Productivity Loss** (beat the Natural Flow)
4. **Improve Overall Trends for all Outcomes**

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References

- ACOEM Health & Productivity Online Education Program Toolkit
- Kessler & Stang. Health and Work Productivity: Making the Business Case for Quality Healthcare. U of Chicago Press. 2006.
- Schultz AB, Edington DW. Employee Health and Presenteeism: A Systematic Review. J Occup Rehabil. 2007; 17: 547-579.
- Brooks A et al. Presenteeism: Critical Issues. JOEM. 2010; 52: 1055-1067.

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